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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,782	02/09/2006	Tomoo Sugawara	4670-0119PUS1	3047
2292	7590	10/03/2006	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			TESKIN, FRED M	
			ART UNIT	PAPER NUMBER
			1713	

DATE MAILED: 10/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/567,782

Applicant(s)

SUGAWARA, TOMOO

Examiner

Fred M. Teskin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>20060209; 20060504</u> . | 6) <input type="checkbox"/> Other: ____.  |

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Claims 1-7 are currently pending and under examination herein.

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by each of JP 01-204924 and JP 03-115428.

The cited documents each disclose molded articles obtained by subjecting cyclic olefin monomer to metathesis polymerization in the presence of a metathesis polymerization catalyst and compounds or agents corresponding to applicants' compound "having two or more vinyl groups in a molecule" and "radical generating

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agent", as claimed. Per the PAJ abstracts (submitted with the IDS of 09 February 2006) JP '248 describes polymerization and molding in the presence of a compound *capable of generating a radical* by redox reaction and a radical-polymerizable vinyl monomer having a *double bond* conjugated with the *vinyl group*; while in JP '924 a molded item is obtained from a reactive solution containing a soluble elastomer containing 10 mol % or less of repeating units having *carbon-carbon double bonds* and a monomer-reducing agent *forming a radical* when reduced by oxidation-reduction reaction. The described vinyl monomer and elastomer are considered species of the "compound" of claim 1, in view of the presence therein of double bond/vinyl conjugation and ethylenically unsaturated recurring units, respectively.

JP '924 further describes preparing a molded item of *crosslinked* polymer by bulk polymerizing and molding the metathesis-polymerizable monomer (e.g., DCPD) *in a mold* as per claim 5. This procedure necessarily involves filling (as by injecting) the mold with the reactive solution, whereby the latter will coat the inner surface of the mold. Viewing the mold as a "supporting body", practice of the disclosed preparation would inevitably result in the "coated" and "polymerizing" limitations of claim 4 being met.

As such, JP '248 and JP '924 are deemed fully responsive to essential limitations of claims 1-4, 6 and 7.

Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 7025851 to Caster et al ("Caster").

Caster discloses a method of bonding a first substrate to a second substrate by providing a catalyst at the first substrate surface, providing a metathesizable liquid monomer mixture of crosslinking metathesizable monomer and non-crosslinking metathesizable monomer, and contacting the catalyst on the first substrate surface with the metathesizable mixture to effect the metathesis reaction and bond the first substrate to the second substrate (col. 2, lines 20+). The contacting step produces, as a coating on the first and second substrates, a crosslinkable resin composition comprising a ring-opening metathesis polymerization catalyst and monomer(s) capable of undergoing a metathesis reaction (see col. 4, lines 3-6 and 16-18 and col. 5, lines 28-30); and the substrates may be fibrous in form (e.g., fabric or fiber per col. 2, lines 63+ and col. 3, lines 66-67).

The concrete examples of Caster (see, e.g., Example 37 and Table 22) differ from the claimed invention only in the absence of a compound having two or more vinyl groups in the molecule and a radical generating agent such as a peroxide.

However, Caster mentions as illustrative metathesizable materials, those that include an unsaturated functional group such as *acyclic dienes* (see col. 5, lines 20-25) and generically teaches the use of norbornene monomers represented by formulae wherein each  $R^1$  substituent is defined to include alkenyl such as *vinyl* or *allyl* (see col. 5, line 55 to col. 6, line 38). Thus, there would have been a reasonable expectation of mixtures containing an acyclic diene and/or a norbornene monomer with two or more vinyl groups performing equivalently in the Caster method.

Accordingly, the inclusion of such species of the claimed compound in the monomer mixture of Caster would have been obvious to one having ordinary skill in the art at the time of applicant's invention. It would further have been obvious to one so skilled to include a radical generating agent in the monomer mixture of Caster given the express teachings therein of the benefits of including an optional heat-reactive peroxide compound in the metathesizable material, e.g., ability to effect crosslinking of the propagating polymer under mild conditions (see col. 15, line 33 to col. 16, line 40).

Given the teachings of Caster as detailed above, the subject matter of claims 1, 2, 4 and 5 is held to have been *prima facie* obvious to one having ordinary skill in the art at the time of applicant's invention.

Claims 3, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Caster et al as applied to claims 1, 2, 4 and 5 above, and further in view of US 6020443 to Woodson et al ("Woodson").

To convert the monomer mixture of Caster, as modified *supra* to contain a peroxide and an acyclic diene and/or a norbornene monomer with two or more vinyl groups, to a molded object as claimed would have been obvious to one of ordinary skill in the art given the teachings of Woodson detailing the molding utility of compositionally similar starting material. In particular, Woodson teaches that DCPD starting material containing peroxidic crosslinking agent and (preferably) a Ru carbene complex as olefin metathesis catalyst may be used in a variety of polymer processing techniques

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including RIM (reaction injection molding)(see col. 1, lines 28-32; col. 6, lines 28-35; col. 7, lines 50-65 and col. 8, lines 58+).

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5728785 to Grubbs et al ("Grubbs").

Grubbs differs from the claimed invention only in that a compound having two or more vinyl groups in the molecule is not used in its specific embodiments of preparing polycycloolefin from DCPD monomer (see Example 4).

However, Grubbs' teaching of suitable monomers explicitly contemplates monomers that are cyclic or acyclic, with the latter being *at least a diolefin* in order to polymerize (see col. 5, lines 25-30). Thus, one would have had a reasonable expectation of monomer mixtures containing a compound having multiple vinyl groups, such as a diolefin, performing equivalently to DCPD monomer in the method of Grubbs.

Therefore, the inclusion of a diolefin in the starting (reactive) mixture of Grubbs et al would have been obvious to one having ordinary skill in the art at the time of applicant's invention.

Claims 3, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grubbs et al as applied to claims 1 and 2 above, and further in view of Woodson et al.

To convert the starting mixture of Grubbs et al, as modified *supra* by inclusion of a diolefin compound, to a molded object would have been obvious to one of ordinary

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skill in the art given the teachings of Woodson detailing the molding utility of compositionally similar starting material - in particular, the teaching that DCPD starting material containing peroxidic crosslinking agent and (preferably) a Ru carbene complex as olefin metathesis catalyst may be used in a variety of polymer processing techniques including RIM (reaction injection molding)(see Woodson at col. 1, lines 28-32; col. 6, lines 28-35; col. 7, lines 50-65 and col. 8, lines 58+).

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-7 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 9-19 of copending Application No. 10/567,967 in view of Caster et al.



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The conflicting claims differ in that applicant's claims call for the presence of a compound having two or more vinyl groups and this compound is not recited in the copending application claims.

Nevertheless, it would have been obvious to one of ordinary skill in the art to modify the polymerizable composition as claimed in the '967 application by inclusion of a compound having two or more vinyl compounds, since Caster et al teach such compounds as suitable components of a similar crosslinkable composition - i.e., a metathesizable material that may include an unsaturated functional group such as *acyclic dienes* (see col. 5, lines 20-25) and norbornene monomer represented by formulae wherein each substituent R<sup>1</sup> is defined to include alkenyl groups such as *vinyl* or *allyl* (see col. 5, line 55 to col. 6, line 38).

This is a provisional obviousness-type double patenting rejection.

No claims are allowable at this time.

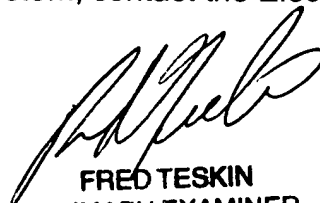
Any inquiry concerning this communication should be directed to Examiner F. M. Teskin whose telephone number is (571) 272-1116. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

FMTeskin/09-28-06



FRED TESKIN  
PRIMARY EXAMINER  
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